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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,154	10/06/2003	Talbert James Black JR.	DIX001-154	5741

7590 11/17/2006

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EXAMINER	
KUMAR, RAKESH	

ART UNIT	PAPER NUMBER
3654	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/678,154	**Applicant(s)** BLACK ET AL.	
	Examiner Rakesh Kumar	**Art Unit** 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11-15,17-20 and 22-25* is/are rejected.

7)☐ Claim(s) *7-10,16 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed 02/15/2006 have been fully considered but they are not persuasive for reasons detailed below, Applicant's claims as filed 10/06/2003 pending in this Office Action.

The prior art rejections are maintained or modified as follows:

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2,11,13,14,17-19,22 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Wittern (U.S. 6,302,293) in view of Holstein (U.S. 3,128,013), Masters (U.S. 4,999,556), Sorensen (U.S. 6,328,180), Fitzgerald (U.S. 6,330,856), Feltrin (U.S. Patent Number 5,799,823) and in further view of Feltrin (U.S. 6,321,936).

4. Referring to claim 1. Wittern discloses a vending machine 10 comprising: a cabinet frame 12 including top, bottom, side and rear walls that collectively define a central cavity (Figure 1A);

a plurality of column walls 20A-20H positioned in the central cavity to define a plurality of stack areas C1-C7, each of the plurality of stack areas C1-C7 being adapted to receive an associated plurality of product containers 8 (Figure 2);

a door 18 being pivotally mounted to the cabinet frame 12 to enable selective access to the central cavity (C1-C7 as a whole) in order to permit loading of product containers 8 in the plurality of stack areas C1-C7.

Holstein discloses a door having an opening 171, a product delivery chute 167 arranged below the plurality of stack areas C1-C6, said product delivery chute 167 being adapted to conduct a selected one of the plurality of product containers to the opening in the door; and

a dispensing system (67, 47, 41, 39, 73, 33 and 49) arranged between the plurality of stack areas C1-C6 and the product delivery chute 167 (Figure 1, 2 and 4) and a dispensing system (67, 47, 41, 39, 73, 33 and 49) including: a vend motor assembly (Figure 8 and 9) including a vend motor EM1, a motor shaft 85, and a cam member 89 connected to the motor shaft 85 (Col. 5 lines 60-75, Col. 7 lines 1-7).

Masters discloses a pulse width modulator motor control wherein the controller operating (Figure 2; Col. 3 line 3) the motor 18 through a pulse width modulated signal 28 to provide a soft start (Col. 3 line 20) wherein the speed of the motor is gradually increased upon activation of the motor (Col. 2 line 14, Col. 3 line 46, 62);

Sorensen discloses a vending apparatus comprising a gear motor 97 driven by a pulse width modulated signal and an optical pulse encoder 100 (rotation sensor) that counts the rotations of the motor's shaft (Col. 14 lines 15-40).

Fitzgerald discloses a vending apparatus comprising a paddle 50 wherein the position of the paddle is monitored by a position sensor 75 (Col. 5, line 20-27).

Feltrin (U.S. Patent Number 5,799,823) discloses a cradle member 6 for supporting at least one of the plurality of product containers 1° prior to a vend operation (Figure 3, I; Col. 3 line 27), said cradle member 6 including a first end 8 (Col. 2 line 41-64) operatively connected to the motor shaft 18, a second end 8 rotatably supported in the central cavity 4a and 4b (by connecting supporting member 2; Figure 1 and 2), and an intermediate portion (center of cradle 6), wherein rotation of the cradle member is regulated by the vending machine controller (Col. 3 line 39). A load bar 30 mounted for pivotal (mounted on member 27) movement relative to the cradle member 6 (Figure 1 and 3; Col. 3 lines 16-23), said load bar 30 being movable between a first position (Figure 3, I) wherein the load bar supports the plurality of product containers 2°, and a second position (Figure 3, V) wherein the load bar 30 releases at least one of the plurality of containers 2° into the cradle member 6; and a push arm 26 operatively connected between the vend motor assembly 19 and the load bar 30 (Col. 3 line 24-38), said push arm 26 being adapted to be shifted upon rotation of the motor shaft 18 to selectively move the load bar 30 between the first (Figure 3, I) and second positions

(Figure 3, V) in order to replenish the products 1°-6° contained in the cradle member 6 (Col. 3, line 39 - Col. 4 line7).

Feltrin (U.S. Patent Number 6,321,936) further discloses a position sensor (drop sensor) connected to a control unit controlling a motor reducer 15, which further controls the rotation of the cradle member 6 (Figure 2-7; Col. 4 line 40 - Col. 5 line 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vending machine apparatus of Wittern to include an opening in the door and dispose a vending motor assembly to dispense product containers to the product chute as taught by Holstein. Thus, each of the stack areas can be individually controlled and can dispense product through the opening of the front door.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vending machine apparatus of Wittern in view of Holstein to include a pulse width modulator motor control signal operated by the controller to provide a gradual increase in the rotational speed of the motor as taught by Masters. As a result, the rotation speed of the motor can be gradually increased and thus reducing the damage to the motor during initial startups and preventing product damage.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vending machine apparatus of Wittern in view of

Holstein and Masters to further include a rotation sensor which detects the rotation of the motor shaft as taught by Sorensen because the amount of rotation desired by the controller can be more easily controlled by receiving feedback from the rotation sensor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vending machine apparatus of Wittern in view of Holstein, Masters and Sorensen to include a position sensor as taught by Fitzgerald to detect the position of the cradle because the rotation of the cradle could be more accurately controlled during the rotation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vending machine apparatus of Wittern in view of Holstein, Masters, Sorensen and Fitzgerald to include a cradle powered by a vend motor assembly, load bars pivotally mounted by the push arm and using a position sensor to feed the input to the controller to control the rotation of the cradle as taught by Feltrin. It would have been further obvious to one of ordinary skill in the art at the time the invention was made to use the signals from the rotation and position sensors to accurately control the rotation of the cradle to within a fraction of a degree through controlling the rotation of the motor by the controller. Thus, each of the stack area vend motor assemblies can be individually controlled through the vend controller.

5. Referring to claims 22 and 23. Although Wittern in view of Holstein, Masters, Sorensen, Fitzgerald in view of Feltrin (5,799,823) and in further view of Feltrin (U.S. 6,321,936) do not explicitly disclose a method of using the apparatus described, the method steps recited in the claim would inherently be performed when using the apparatus described above in its usual and expected fashion.

6. Referring to claim 5. Regarding claim 5, Wittern in view of Holstein, Masters, Sorensen, Fitzgerald and as modified by Feltrin (U.S. 5,799,823) discloses returning the push arm 26 to a set position after the push arm 26 moves the load bar to the second position. Feltrin further discloses a return spring is not required in the apparatus to return the load bar to the first position. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a return spring for the push arms 26 to return the load bars 30 to the first position as taught by Feltrin (U.S. 5,799,823). Such a selection would be well within the level of skill of an artisan.

7. Referring to claim 6. Regarding claim 6, Wittern in view of Holstein, Masters, Sorensen, Fitzgerald and as modified by Feltrin (U.S. Patent Number 6,321,936) discloses a push arm (arm member next of spring member 16 in Figure 7) includes an ear element projection, said ear element being adapted to receive a first end of the return spring 16 with a second end of the return spring 16 being fixed relative to the front terminal 5b (Col. 3 line 1-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a return spring 16 with the

first end attached to the push arm and the second end attached to the cabinet frame 1, to provide a constant tension on the push arm. Such a selection would be well within the level of skill of an artisan.

8. Referring to claim 12. Regarding claim 12, Wittern in view of Holstein, Sorensen, Fitzgerald and Feltrin as modified by Masters discloses the output voltage 10 as a DC voltage output (Figure 2), Masters further disclose a DC voltage connected to the positive lead of the motor (Col. 5 line 36-40, Col. 6 line 20, 35 and 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a DC voltage motor to drive the vend motor assembly, as a result, reducing the abnormal conditions due to alternating current can be eliminated and improved control of the motor rotation can be achieved. Such a selection would be well within the level of skill of an artisan.

9. Referring to claim 15. Regarding claim 15, Wittern in view of Holstein, Masters, Sorensen, Fitzgerald as modified by Feltrin (U.S. 5,799,823) discloses the vend motor assembly 19 includes an output shaft 18 having a first hub 17 portion and a second hub portion 8, said second hub portion 8 projecting axially from the first hub portion and being interconnected with the cradle member allowing for the rotation of cradle 6 (Figure 1; Col. 2 line 53-64).

10. Referring to claims 20, 24 and 25. See claim 1. Regarding claim 20, Wittern in view of Holstein, Sorensen, Fitzgerald, Feltrin as modified by Masters discloses a pulse width modulated signal 28 to provide a soft start (Col. 3 line 20) wherein a speed of the motor is gradually increased upon activation of the motor. In order to gradually increase the speed of the motor it is generally understood and broadly construed to mean that a positive ratio of the pulse width modulation signal is transmitted to the motor. This ratio factor is not specifically discloses to be doubling with each successive pulse until a 100% duty cycle is achieved, however is does gradually increase the rotation of the motor speed to its full cycle. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a successive doubling signal ratio, thus, the motor approaches its peak rotation limit faster and reduces the time required to dispense the product. Such a selection would be well within the level of skill of an artisan.

11. Referring to claims 24 and 25. Regarding claims 24 and 25 although Wittern in view of Holstein, Masters, Sorensen, Fitzgerald, Feltrin (U.S. 5,799,823) and Feltrin (U.S. 6,321,936) do not explicitly disclose a method of using the apparatus described, the method steps recited in the claim would inherently be performed when using the apparatus described above in its usual and expected fashion.

12. Claims 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Wittern in view of Holstein, Masters, Sorensen, Fitzgerald, Feltrin as applied to claim 1 above, and further in view of Oden (U.S. Patent Number 4,298,138).

13. Referring to claims 3 and 4. Regarding claim 3, Wittern in view of Holstein, Masters, Sorensen, Fitzgerald and Feltrin as modified by Oden teaches intermediate portion of cradle 2 includes at least one notch 24 and 22 that establishes a vend angle for dispensing a product container during a vend operation (Figure 1), and maintaining the product within the cradle until being release to the chute (Col. 2 line 42-68). Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vend motor assembly as stated above (see claim 1) to adapt the cradle to sequentially dispense product containers through the plurality of notched areas as the cradle is rotated during sequential vend operations. Thus, providing a more accurate dispensing of the containers.

Allowable Subject Matter

14. Referring to claims 7-10,16 and 21. Claims 7-10,16 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

15. Applicant's arguments filed 02/15/2006 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

The Applicant argues (page 3 line 19), that "Masters does not teach providing a soft start for a vend motor." The Office relies on Masters for the teachings of a pulse width modulated control system wherein the circuit is in line with a motor, the pulse width modulated signal is increased in voltage (col. 9 line 7) and duration until the motor rotational speed approached its full speed however, the pulse width modulated signal transmitted by the circuit is incrementally increased in both strength and duration thus the motor's rotational speed can "gradually" be increased or decreased, as a result, providing a "soft start" of the motor. It is also understood by the Office that a motor referred to by Masters equally satisfies the limitation recited in the Applicant's claim as the "vend motor".

In response to applicant's argument that "Master is not all concerned with the vending of products", the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

The Office relies on the broadly construed functioning of the error sensor (42) as disclosed by Masters. The error sensor of Masters provides for maintaining a constant motor speed (rotation motor speed) by extracting information of changes in the motor load and through a feedback loop and depending of the information, regulating the power to the power switch (16) to maintain a constant motor speed, thus it is construed by the Office to be a rotation sensor.

The Office relies on the teachings of Feltrin '936 of a drop sensor connected to a control unit so that the motor-reducer (15) is switched off as soon as the sensor detects that a product is dropped from the stack thus, inherently it is a position sensor.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). See above.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that “at no point is there any need or disclosure for accurately controlling a particular vend angle”, the applicant is reminded that the pulse width modulated signal as taught by Masters can inherently be varied in magnitude and duration such that during rotation of the motor the cradle can be configured to rotate to a particular vend angle by one skilled in the art.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dobbins (US 4,785,927) discloses a PWM circuit and a position sensor to maintain motor rotation speed.

Lindsey (US 4,511,060) discloses a motor connecting a cradle.

Bookout (US 3,883,038) discloses a motor connecting a cradle.

Hossfield (US 5,404,986) discloses 0.6-degree incremental rotation of the motor.

Amari (US 2002/0180136A1) discloses a pulse sensor 217 for detecting the number of rotation of the motor 214.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh Kumar whose telephone number is (517) 272-8314. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK
November 1, 2006

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SUPERVISORY PATENT EXAMINER